

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (*Currently Amended*) A method ~~Method~~ to generate a pseudo-random sequence (~~PRMS1~~) of multi-carrier data symbols (~~DMT0, DMT1, DMT2~~), said method comprising:

[[a.]] producing a pseudo-random bit sequence (~~PRBS1~~) by repetitively generating a pseudo-random sequence of L bits, L being a first integer value (~~L=4~~);

[[b.]] packetizing into multi-carrier data symbols (~~DMT0, DMT1, DMT2~~) thereby using N bits of said pseudo-random bit sequence (~~PRBS1~~) per multi-carrier data symbol (~~DMT0, DMT1, DMT2~~), N being a second integer number (~~N=8~~), to thereby generate said pseudo-random sequence (~~PRMS1~~) of multi-carrier data symbols (~~DMT0, DMT1, DMT2~~),

wherein ~~CHARACTERIZED IN THAT~~ said packetizing comprises:

[[b1.]] dividing said pseudo-random bit sequence (~~PRBS1~~) into strings of N' bits, N' being a third integer value larger than N, wherein N is greater than or equal to two (~~N'=9~~);
and

[[b2.]] using N bits out of each string of N' to generate a multi-carrier data symbol (~~DMT0, DMT1, DMT2~~) out of said pseudo-random sequence (~~PRMS1~~) of multi-carrier data symbols (~~DMT0, DMT1, DMT2~~), and leaving N'-N bits out of each string of N' bits unused.

2. (*Currently Amended*) A generator ~~Generator (PR-GEN1)~~ of a pseudo-random sequence (~~PRMS1~~) of multi-carrier data symbols (~~DMT0, DMT1, DMT2~~), said generator (~~PR-GEN1~~) comprising:

[[a.]] scrambling means (~~SCR1~~), adapted to repetitively generate a pseudo-random sequence of L bits, L being a first integer value (~~L=4~~), to thereby produce a pseudo-random bit sequence (~~PRBS1~~);

[[b.]] packetizing means, adapted to packetize into multi-carrier data symbols (~~DMT0, DMT1, DMT2~~) using N bits of said pseudo-random bit sequence (~~PRBS1~~) per multi-carrier data symbol (~~DMT0, DMT1, DMT2~~), N being a second integer number (~~N=8~~), to thereby generate said pseudo-random sequence (~~PRMS1~~) of multi-carrier data symbols (~~DMT0, DMT1, DMT2~~),

wherein ~~CHARACTERIZED IN THAT~~ said packetizing means comprises:

[[b1.]] dividing means (~~DIV1~~), adapted to divide said pseudo-random bit sequence (~~PRBS1~~) into strings of N' bits, N' being a third integer value larger than N, wherein N is greater than or equal to two ~~and (N'=9)~~; and

[[b2.]] multi-carrier data symbol generating means (~~EMB1~~), adapted to use N bits out of each string of N' bits to generate a multi-carrier data symbol (~~DMT0, DMT1, DMT2~~) out of said pseudo-random sequence (~~PRMS1~~) of multi-carrier data symbols (~~DMT0, DMT1, DMT2~~) and to leave N'-N bits out of each string of N' bits unused.

3. (*Currently Amended*) A multi-carrier ~~Multi-carrier~~ transmitter (MC-TX) comprising a pseudo-random sequence generator (~~PR-GEN1~~) as defined by claim 2[[1]], and further comprising transmitting means (~~TX~~), coupled to said pseudo-random sequence generator (~~PR-GEN1~~), and adapted to transmit a pseudo-random sequence (~~PRMS1~~) of multi-carrier symbols (~~DMT0, DMT1, DMT2~~) generated by said pseudo-random sequence generator (~~PR-GEN1~~) over a communication channel (~~CHANNEL~~).

4. (*Currently Amended*) A multi-carrier ~~Multi-carrier~~ transmitter (MC-TX) according to claim 3, wherein ~~CHARACTERIZED IN THAT~~ said multi-carrier transmitter (MC-TX) further comprises selection means (~~SEL~~), adapted to select said third integer value N', and communication means (~~COM~~) coupled to said selection means (~~SEL~~), and adapted to communicate said third integer value N' to a multi-carrier receiver (~~MC-RX~~).

5. (*Currently Amended*) A multi-carrier ~~Multi-carrier~~ transmitter (MC-TX) according to claim 4, wherein ~~CHARACTERIZED IN THAT~~ said selection means (~~SEL~~) is adapted to select said third integer value N' so that N' differs from L-1, so that N' differs from L+1, and so that N' is not fractionally related to L.

6. (*Currently Amended*) A multi-carrier ~~Multi-carrier~~ receiver (~~MC-RX~~) comprising a pseudo-random sequence generator (~~PR-GEN2~~) as defined by claim 2[[1]], and further comprising:

receiving means (~~RX~~) adapted to receive a first pseudo-random sequence (~~PRMS1'~~) of multi-carrier symbols transmitted over a communication channel (~~CHANNEL~~), and

decoding means (~~DECODER~~), coupled to said receiving means (~~RX~~) and to said pseudo-random sequence generator (~~PR-GEN2~~), and adapted to decode said first pseudo-random sequence (~~PRMS1'~~) of multi-carrier symbols and a second pseudo-random sequence (~~PRMS2~~) of multi-carrier symbols generated by said pseudo-random sequence generator (~~PR-GEN2~~).

7. (*New*) The method according to claim 1, wherein said third integer value N' differs from L-1, differs from L+1 and is not fractionally related to L.

8. (*New*) A generator of a pseudo-random sequence of multi-carrier data symbols, said generator, comprising:

a scrambler that repetitively generates a pseudo-random sequence of L bits, L being a first integer value, to thereby produce a pseudo-random bit sequence;

a packet generator that packetizes multi-carrier data symbols using N bits of said pseudo-random bit sequence per multi-carrier data symbol, N being a second integer number, to thereby generate said pseudo-random sequence of multi-carrier data symbols,

wherein said packet generator comprises:

a divider that divides said pseudo-random bit sequence into strings of N' bits, N' being a third integer value larger than N , and wherein , wherein N is greater than or equal to two;
and

a multi-carrier data symbol generator that uses N bits out of each string of N' bits to generate a multi-carrier data symbol out of said pseudo-random sequence of multi-carrier data symbols and to leave $N'-N$ bits out of each string of N' bits unused.

9. (New) A multi-carrier transmitter comprising a pseudo-random sequence generator as defined by claim 8, and further comprising a transmitter, coupled to said pseudo-random sequence generator, and adapted to transmit a pseudo-random sequence of multi-carrier symbols generated by said pseudo-random sequence generator over a communication channel.

10. (New) A multi-carrier transmitter according to claim 9, wherein said multi-carrier transmitter further comprises a switch that selects said third integer value N' , and a communication device coupled to said switch, and adapted to communicate said third integer value N' to a multi-carrier receiver.

11. (New) A multi-carrier transmitter according to claim 10, wherein said switch is adapted to select said third integer value N' so that N' differs from $L-1$, so that N' differs from $L+1$, and so that N' is not fractionally related to L .

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12. *(New)* A multi-carrier receiver comprising a pseudo-random sequence generator as defined by claim 8 and further comprising:

a receiver that receives a first pseudo-random sequence of multi-carrier symbols transmitted over a communication channel, and

a decoder coupled to said receiving means and to said pseudo-random sequence generator, and decoding said first pseudo-random sequence of multi-carrier symbols and a second pseudo-random sequence of multi-carrier symbols generated by said pseudo-random sequence generator.